SYNOPSIS

On

IMPACT OF DIETARY PATTERN AND NUTRITIONAL STATUS ON MENTAL HEALTH: A COMPARATIVE STUDY AMONG COLLEGE GOING MALE STUDENTS RESIDING IN HOME AND HOSTEL IN BANKURA DISTRICT

For

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Home Science

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Title of Ph.D. Research – Impact of Dietary pattern and nutritional status on mental health: A comparative study among college going male students residing at home and hostel in Bankura district.

State of the Art

Emerging evidence highlights that insufficient or inadequate nutrition is linked to an increased risk of brain health, mental health, and psychological functioning compromise. A core component of this relationship includes the intricate dynamics of the brain-gut-microbiota (BGM) system, which is a progressively recognized factor in the sphere of mental/brain health. The bidirectional relationship between the brain, gut, and gut microbiota along the BGM system not only affects nutrient absorption and utilization, but also it exerts substantial influence on cognitive processes, mood regulation, neuroplasticity, and other indices of mental/brain health. (**Merlo G., Bachtel G., Sugden G. S., et al 2024)**Undernutrition is most critical health challenges facing society today, not just in terms of health, but also health care expense. Several studies have revealed that college students often have bad eating habits. Students typically consume less fruits and vegetables per day and report a high intake of high-fat, high-calorie items **(Rameshthangam, 2023**). Deficiencies in nutrients such as protein, B vitamins, vitamin D, magnesium, zinc, selenium, iron, calcium, and omega-3 fatty acids have a significant impact on brain and nervous system function, which can affect the appearance of depressive symptoms. **(Zielińska et al, 2023)**

Different researcher conducted research in relation to the present research. From a study, Zhao et al revealed that a high prevalence of obesity and undernutrition in college students, suggesting that while some students experience weight gain due to unhealthy eating habits, others face challenges related to insufficient caloric intake and malnutrition **(Zhao et al, 2022).**

Students residing at home are likely to have more access to home-cooked meals, which are perceived as healthier, but they may still face challenges such as long study hours and lack of time for meal preparation **(Patil et al., 2022).**

Patil et al found that hostel students predominantly consume foods like fried snacks, instant noodles, and sweets, which are calorie-dense but nutritionally poor. The lack of proper cooking facilities and the reliance on food provided by the hostel kitchen can lead to inadequate intake of fruits, vegetables, and whole grains **(Patil et al, 2021).**

Krishna et al state that students who live at home typically have a more balanced diet, especially if they have access to home-cooked meals prepared by family members. students living with their families had better intake of fruits, vegetables, and proteins, contributing to a better nutritional profile **(Krishna et al, 2020).**

Limited time for food preparation, the availability of fast food, poor dietary knowledge, and academic stress, these challenges can lead to suboptimal dietary patterns, such as skipping meals, overconsumption of snacks, or reliance on processed foods. Both undernutrition (such as micronutrient deficiencies) and overnutrition (such as obesity and metabolic diseases) are prevalent in this population **(Rathi et al., 2020).**

For students residing in hostels, the lack of control over food preparation, reliance on institutional food services, and irregular meal timings often lead to diets that are low in nutritional quality. Hostel food is typically mass-produced and may lack variety, fresh produce, and sufficient micronutrients. These students may also adopt poor eating habits, such as consuming unhealthy snacks or fast food, due to convenience and limited options. Additionally, the social dynamics in hostel environments often encourage unhealthy eating patterns, such as eating together with peers or indulging in late-night snacking. These factors can contribute to malnutrition, both in the form of undernutrition (micronutrient deficiencies) and overnutrition (weight gain and obesity) **(Yadav et al., 2020).**

Students residing at home may benefit from home-cooked meals, which are often perceived as healthier and more balanced. However, they too face challenges that can affect their nutritional status. The increasing academic workload and time constraints often lead to skipped meals, irregular eating patterns, or dependence on processed, ready-to-eat foods. Additionally, the growing tendency for students to eat out with friends or purchase quick, unhealthy snacks adds to their vulnerability to poor dietary habits. Although these students may have better

access to fresh food compared to hostel dwellers, their overall diet may still lack sufficient variety and nutrient density due to lifestyle pressures **(Rathi, Garg et al, 2020).**

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Dietary profile affects not only the brain composition, structure and function, but also endogenous hormones, neuropeptides, neurotransmitters, and the microbiota-gut-brain axis, in turn playing a key role in modulation of stress and inflammation and in preservation of cognitive function **(Adan et al.,2019).** The dietary habits of college students are often influenced by factors such as stress, peer pressure, socioeconomic status, and the availability of food. Male students, particularly those living away from home, tend to have an increased consumption of fast food, soft drinks, and other energy-dense but nutrient-poor foods, which may contribute to unhealthy weight gain and other health issues **(Singh et al., 2019).**

The nutritional status of students residing at home is often better compared to those in hostels, who may rely on poor-quality institutional food. Hostels may have limited resources to provide

nutritious food, and students often turn to unhealthy food choices due to convenience (**Yadav et al., 2019).** In college students, especially young males, poor dietary patterns can lead to both undernutrition (e.g., deficiencies in vitamins and minerals) and overnutrition (e.g., obesity and metabolic diseases). As young adults transition from adolescence to adulthood, they may experience changes in their eating behaviours due to academic demands, independence, peer influences, and financial constraints **(Tiwari et al., 2019).**

In a study, Vasudevan et al showed that a significant proportion of college students exhibit unhealthy dietary practices, such as excessive intake of fats, sugars, and processed foods, contributing to the growing incidence of obesity. **(Vasudevan et al, 2019).**

While the determining factors of mental health are complex, increasing evidence indicates a strong association between a poor diet and the exacerbation of mood disorders, including anxiety and depression, as well as other neuropsychiatric conditions. **(Adan et al 2019).**

Srivastava et al showed that imbalanced macronutrient intake, with students consuming excessive amounts of carbohydrates and fats, while protein intake remains insufficient. Male students often fail to meet the recommended dietary intake of protein and fibre, which are essential for muscle growth and overall health **(Srivastava et al, 2019).**

Naskar and Ray concluded that colleges can encourage healthy eating habits by providing easy access to healthy snacks, offering nutrition workshops, and involving dietitians in planning meals for hostels, also recommended the inclusion of more plant-based meals to improve the nutrient intake of hostel students. **(Naskar and Ray, 2019).**

Inadequate nutrition affects students' health and academic success. Students may have proficient knowledge regarding nutritional requirements; however, the transition to college life gives them more freedom to choose the type and the amount of food they eat. Most college campuses have dining facilities that provide a variety of food options, which can lead to establishing either good or bad eating behaviours **(Abraham & Noriega, 2018).**

Studies have highlighted concerns about the nutritional status of students, particularly the high prevalence of obesity, micronutrient deficiencies, and poor dietary choices. Despite these challenges, limited research has specifically focused on the comparative dietary profiles and nutritional status of male students in different living conditions. Understanding the dietary patterns, nutrient intake, and health risks associated with both hostel and home living

arrangements is essential for formulating effective nutrition education and intervention programs. **(Adriano et al., 2018)**

Rao et al said that college students often have limited financial resources, which may impact their ability to purchase nutritious food. students in hostels were more likely to choose inexpensive, unhealthy foods due to budget constraints, while students at home could benefit from family support. **(Rao et al, 2018).**

Maddock et al said that college students are also heavily influenced by their peers when it comes to food choices. The social environment in both home and hostel settings plays a significant role in shaping dietary preferences, especially for foods that are seen as trendy or popular among peers **(Maddock et al, 2018).**

In a study, Agarwal et al concluded that a significant number of college students, particularly in underdeveloped or developing countries, face nutritional deficiencies, such as iron, vitamin B12, and folate deficiencies. Poor food choices and limited access to nutritious food in the hostel setting contribute to this **(Agarwal et al, 2017).**

From a study Gustafson et al concluded that stress from academic pressures, assignments, and exams can lead to poor eating habits such as skipping meals, emotional eating, or increased consumption of junk foods as a form of coping **(Gustafson et al, 2017).**

Sundaram et al state that Economic constraints can significantly influence the type and quality of food consumed, students from lower-income backgrounds often rely on low-cost, nutrient-poor foods, leading to poor nutritional status. **(Sundaram et al, 2016).**

Sahoo et al said that there is a rising concern about the increasing prevalence of overweight and obesity among college students, attributed to the consumption of calorie-dense, nutrient-poor foods .This has been linked to poor dietary habits such as skipping meals, frequent consumption of fast food, sugary snacks, and carbonated beverages **(Sahoo et al, 2015).**

Sahoo et al state that , A sedentary lifestyle is common among college students due to the long hours spent studying, which contributes to the risk of obesity and related diseases. The lack of physical activity further exacerbates the negative effects of poor dietary habits. **(Sahoo et al, 2015)**

Nutritional status refers to the condition of an individual's health as influenced by their food intake, absorption, and metabolism of nutrients. During college years, students face several

challenges that may influence their nutritional status, such as limited time for food preparation, the availability of fast food, poor dietary knowledge, and academic stress **(Mandal et al., 2015).**

Financial constraints can lead students to choose less expensive, less nutritious food options. This is particularly a challenge for students living in hostels who often have a limited food budget **(Saha.S,2015).**

Problems to be investigated:

Food effects the mental health, but there is no significant work has done on functional relationship between food and mental health. The study will also focus on how the changes of dietary pattern effects the mental health gradually.

Research gap

The health and nutritional status of college-going students are critical determinants of academic performance and overall well-being and mental health. There are lots of work has done on nutritional status of college students, but no significant work has been done on the effect of nutritional status and dietary intake on mental health of students. Also, there is no sufficient information regarding the nutritional status of college going boys of Bankura district. Therefore, to collect adequate information about the nutritional status of college going boys living in Bankura district, this study will be carried out in this area.

Research Motivation and Objectives:

1. Motivation

The aim of this study is to know the Dietary pattern and Nutritional status and their impact on mantal health of college going male students of Bankura district (West Bengal). I will try to find out the functional relationship between food and mental health. Also try to find out how the nutritional deficiency and over nutrition effect the mental health.

2. Objectives:

- To investigate the Dietary pattern and Nutritional status of college going male students, (Day scholars and hostelers).
- To investigate the mental health status of college going students.
- To examine the relationship between dietary pattern, nutritional status and mental health among the target group.

Hypotheses:

1. There is a significant difference in the dietary pattern and nutritional status among the male students, living at home and those resides in hostels.
2. There is a significant difference of mental health between day scholar and hostelers.
3. There is a significant association between dietary pattern, nutritional status and mental health among the students.

Research Design and Methodology

Area of study

The proposed study will be carried out on college going male student at different areas of Bankura district. Bankura district is situated in West Bengal which is a province of India.

Research Design

An Exploratory research design will be used to conduct this study.

Sample selection

A total of 300 college going male students (150 hostel and 150 home living) aged 18-22 years will be the selected by random sampling method.

Data collection

Data will be collected by using a pre-designed schedule. Data related to general information and dietary pattern will be collected by interviewing the studied population.

Assessment of nutritional status:

To assess the nutritional status, following methods will be used –

1. Anthropometric measurement: - BMI

Weight and height will be measured by using appropriate techniques (WHO, 1995). From these measurements body mass index (BMI) will be computed. The nutritional status of the college students will be evaluated from BMI (WHO, 2006).

2.Clinical assessment: Their physical appearance, as eye colour, skin quality, hair colour, nail structure will be examined thoroughly.

Mental health examination- Mood, behaviour, thinking, physical health, sleep pattern, focus, substance abuse, social withdrawal of the respondents will be examined.

3. Dietary assessment: In this study, dietary pattern will be assessed by food frequency questionnaire technique and the amount of nutrient intake will be assessed by 24-hours diet recall method

Assessment of socio-economic status: To assess the socio-economic status following area will be covered.

- Living area of the respondent.
- Education of the family members.
- Income of the family.

Assessment of mental health status: To assess the impact of dietary pattern and nutritional status on mental health of college going students, Mental Health Inventory scale (Dr. Jagdish and Dr. A.K. Srivastava) will be used.

Statistical analysis

Weight and height will be expressed as their mean and standard deviation (SD). To find out the significant difference between two groups, t-test will be done. To find out the association among different groups χ^2 tests will be carried out.

Expected Outcome of The Study

This study will provide information about the nutritional status of the college student living in home and hostel. This study will not only help to improve the awareness level of college going students but also improve their dietary practices. This study will provide information to the nutrition researchers to understand the dietary problems faced by college going students. It will also provide information regarding the functional relationship between food and mental health. The outcome of this study will help the Governments to formulate definite policies and to design effective strategies to address the needs of college going students. Different Non-Government Organization as well as health and nutrition research institution will be benefited from this study as they can use the findings to initiate different intervention programs tailored to improve the nutritional status and living standard of college going students.

Tentative chapters:

Chapter 1	Introduction • Objectives • Research Questions
Chapter 2	Literature Review
Chapter 3	Research methodology
Chapter 4	Results & Discussions
Chapter 5	Conclusion and Suggestions
	References & Appendices

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